

REMARKS

Rejection of the Specification

Applicant has amended the specification as requested so as to include a statement that the three magnetic sensors (first sensors of the independent claims) are able to determine their orientation in three dimensions relative to any constant magnetic field. It is also stated that the earth's magnetic field is substantially constant. Therefore, the first sensors can determine the orientation of an object equipped with the first sensors relative to the earth's magnetic field.

Claim rejections under 35 U.S.C. § 103

In the Response to Arguments, the Examiner made note of several issues. Applicant addresses each of these issues and has amended the claims in order to overcome the rejection of the independent claims.

First, independent claims 1, 13 and 14 all include the phrase, "is capable of". Applicant has amended the independent claims 1, 13 and 14 and removed the "optional" language so that the claims include a definite limitation of structure or process.

Second, the independent claims are rejected because features of the magnetic sensor system are not recited in the claims. Applicant has amended claims 1, 13 and 14 to include new limitations. The limitations are 1) that the first sensor is a magnetic sensor system, and 2) that the first sensor enables the portable electronic appliance to determine a three dimensional orientation relative to the constant magnetic field of the earth.

Third, it is asserted that Rekimoto teaches that the device can detect movement in three dimensions. Applicant agrees, and argued previously that the difference was that Rekimoto only teaches being able to detect this change in orientation. The important distinction is that the device of Rekimoto does not inherently "know" its position, only a change. Thus, if the device of Rekimoto is lying still on a table, the device does not "know", using its gyroscopic sensors, that the device is laying flat on a table relative to the earth. Rekimoto would have to teach a sensor system that can know, through no input of any other information other than what it can detect by the gyroscopic sensors, its own orientation relative to the earth. This information could be provided independently, but that is not the same as being able to determine this information on its own. Thus, the present invention provides a magnetic sensor system, now claimed, that is able to provide this orientation information using its own sensors.

Fourth, the Office Action states that Rekimoto teaches that "the rotational angle is detected based on the Coriolis force F, which is proportional with the sensor mass that is conventionally dependent upon the earth's magnetic field..."

Applicant respectfully traverses the assertion that the Coriolis Effect has anything whatsoever to do with the earth's magnetic field. The Coriolis Effect is an artifact of the earth's rotation. "Once air has been set in motion by the pressure gradient force, it undergoes an apparent deflection from its path, as seen by an observer on the earth. This apparent deflection is called the "Coriolis force" and is a result of the earth's rotation." (see [http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/fw/crls.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/fw/crls.rxml)) Thus, the Coriolis Effect is a

large scale Effect on wind that has no possible application to a small portable device. Applicant respectfully asserts that there is no known relationship between the gyroscopic system of Rekimoto and the Coriolis Effect, and that there is no known relationship between the gyroscopic system of Rekimoto and the earth's magnetic field. Therefore, Applicant respectfully requests that in light of the amended independent claims, the rejection of those claims be withdrawn.

Specific claim rejections

In item 5, claims 1, 2, 4, 13-15 and 17 are rejected under 103(a) as being unpatentable over Davis in view of Rekimoto. Specifically, it is asserted that Davis teaches all elements except for the capability of determining orientation of the portable electronic appliance in three dimensions. However, it is then asserted that Rekimoto teaches a device having a sensor that is a gyro sensor capable of determining orientation of the device in three dimensions.

Regarding claims 1 and 2, applicant respectfully traverses the rejection of these claims in light of Rekimoto. The gyro sensor system of Rekimoto is not capable of determining orientation of the device in three dimensions. The gyro sensor is only capable of determining a change in orientation. In other words, Rekimoto can determine how far the orientation has changed with respect to an X, Y and Z axis, but yet it does not teach the capability, as claimed by the present invention, of determining the static orientation of the device. Therefore, in light of the amendments to claim 1, it is asserted that claim 1 is allowable, and that claim 2 is dependent upon an allowable base claim.

Regarding claim 4, Applicant respectfully asserts that this claim is now dependent upon

an allowable independent claim.

Regarding claims 13 and 14, Applicant has amended these claims identical to the manner in which claim 1 was amended, and are therefore now allowable for the same reasons.

Regarding claims 3, 5-10, 12, 15-23 and 25, Applicant respectfully asserts that these claims are now dependent upon allowable independent claims. The addition of Smith does not teach the absolute position sensors of the present invention, and therefore the invention is still not made obvious.

Conclusion

In light of the statements above, Applicant respectfully requests issuance of claims 1-10, 12-23 and 25. If any impediment to the allowance of these claims remains after entry of this Amendment, and such impediment could be alleviated during a telephone interview, the examiner is invited to call David W. O'Bryant at (801) 478-0071 so that such matters may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 50-0881.

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Respectfully submitted,



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